Department of
Environmental Protection
Bureau of Land & Water Quality March 2005
O&M Newsletter

A monthly newsletter for wastewater discharge licensees, treatment facility operators, and associated persons

Effluent Testing for Mercury

Mercury in Maine's waters continues to be the focus of much concern. As part of the State's effort to control all sources of this toxic element, municipal and industrial facilities discharging to surface waters have interim effluent limits and testing requirements for mercury. These requirements are implemented through Chapter 519 of the Department's rules and do not appear as parameter limits in discharge permits. However, letters sent to each facility establishing limits do represent formal permit modifications to add mercury. Because of the different presentation, some facilities may overlook the need to conduct periodic testing and track compliance with their effluent limits.

For facilities subject to effluent toxicity testing under the toxics rule, Chapter 530.5, mercury testing is to be done at least four times per year. Other municipal and industrial facilities must do at least two mercury tests per year. This latter group should alternate the quarters in which tests are done each year so that over time tests representative of different times of the year are available. To ensure the most accurate results, samples must be collected using so-called clean sampling methods (EPA Method 1669) and analyzed using EPA Method 1631. The test results must be reported on the special DEP forms for effluent mercury and submitted promptly after receiving the report from the laboratory. Please do not save up test reports and send them in only on a periodic basis.

In the event a mercury test records a concentration higher than your interim effluent limits, you should contact the DEP inspector assigned to your facility. In most cases, the first course of action will be to conduct follow-up testing to determine if the higher reading was a one-time occurrence or a continuing trend.

Finally, DEP very much appreciates the efforts wastewater treatment facilities make in helping to control the level of mercury in Maine's waters. Testing is important in documenting and monitoring this important work. As always, if you have questions about the mercury control program, please contact your facility's inspector.

Dennis Merrill

For Practice

1. Very low Chlorine residual concentrations, especially in colored effluents, should be measured by
   a. Amperometric Titration
   b. DPD Colorimetric methods
   c. Winkler Method
   d. Iodometric Method

2. Given the following data, how much sludge should be wasted?
   Plant flow - 1,600,000 gpd
   Current F:M ratio - 0.28
   Target F:M ratio - 0.30
   MLSS Concentration – 2,437 mg/l
   MLVSS/MLSS ratio - 0.82
   Aeration Tank Volume - 600,000 gal
   Influent BOD - 209 mg/L
   Waste Sludge SS -8300 mg/l

   a. none
   b. 11,710 gallons
   c. 10,473 gallons
   d. 9,968 gallons

3. When a gasoline powered fan is used to ventilate a confined space, you must take care to
   a. avoid blowing air into the basements of nearby homes
   b. avoid blowing air into collection mains
   c. prevent exhaust gasses from the blower motor or nearby vehicles from being drawn into the blower intake
   d. blow only cold air into confined spaces

4. the part of centrifugal pump which moves the liquid is the
   a. Volute
   b. impeller
   c. Packing gland
   d. valve

Approved Training

March 9, 2005 in Gardiner, ME – Valves – Exercise & Maintenance Program - Sponsored by MRWA - 207-729-6569 – Approved for 3.5 hours
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March 16, 2005 in Presque Isle, ME - Centrifugal Pump Hydraulic Application - Sponsored by JETCC - 207-253-8020 – Approved for 6 hours
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March 16, 2005 in York, ME – Valves – Exercise & Maintenance Program - Sponsored by MRWA - 207-729-6569 – Approved for 3.5 hours
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March 21, 2005 in Brewer, ME - Understanding your Laboratory QA/QC CD - Sponsored by JETCC - 207-253-8020 – Approved for 6 hours
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March 22, 2005 in Presque Isle, ME - Understanding your Laboratory QA/QC CD - Sponsored by JETCC - 207-253-8020 – Approved for 6 hours
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March 23, 2005 in Presque Isle, ME – Valves – Exercise & Maintenance Program - Sponsored by MRWA - 207-729-6569 – Approved for 3.5 hours
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March 24, 2005 in Lewiston, ME – Ramada Inn - Understanding your Laboratory QA/QC CD - Sponsored by JETCC - 207-253-8020 – Approved for 6 hours
*****

March 24, 2005 in Portland ME – Fats, Oils & Grease (FOG): Management Strategies - Sponsored by WPETC - 207-761-2991 – Approved for 3 hours
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March 30, 2005 in Rumford, ME – Tractor-Loader-Backhoe - Sponsored by MRWA - 207-729-6569 – Approved for 5 hours
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March 31, 2005 in Gray, ME – Tractor-Loader-Backhoe - Sponsored by MRWA - 207-729-6569 – Approved for 5 hours
*****
April 7 & 8, 2005 in Bangor, ME - Basic Microscopy & Filamentous Bacteria Identification - Sponsored by JETCC & NEIWPCC - 207-253-8020 – Approved for 6 hours
*****
April 13, 2005 in Topsham ME – Wastewater Treatment: The Fundamentals - Sponsored by WPETC - 207-761-2991 – Approved for 6 hours
*****
April 14, 2005 in Brewer ME – Lockout/ Tagout & Confined Space Entry - Sponsored by WPETC - 207-761-2991 – Approved for 5 hours
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April 21, 2005 in Augusta, ME - Tricks to By-Pass Pumping - Sponsored by JETCC - 207-253-8020 – Approved for 6 hours
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April 24, 2005 in Topsham ME – Math for Wastewater Operators - Sponsored by WPETC - 207-761-2991 – Approved for 5 hours
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April 27, 2005 in Orono, ME - Biological Process Control - Sponsored by JETCC - 207-253-8020 – Approved for 6 hours
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April 27, 2005 in Old Town, ME – Tractor-Loader-Backhoe - Sponsored by MRWA - 207-729-6569 – Approved for 5 hours
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April 28, 2005 in Caribou, ME – Tractor-Loader-Backhoe - Sponsored by MRWA - 207-729-6569 – Approved for 5 hours
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April 28 & 29, 2005 in Portland - Advanced Activated Sludge - Sponsored by JETCC & NEIWPCC - 207-253-8020 – Approved for 6 hours
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May 3, 2005 in North Vassalboro, ME - Corrosion Management in Potable Waters: It's Not Just Water Chemistry - Sponsored by JETCC - 207-253-8020 – Approved for 3 hours
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May 3, 2005 in North Vassalboro, ME - Verifying the Water/Wastewater Treatment Processes - Sponsored by JETCC - 207-253-8020 – Approved for 3 hours
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May 4, 2005 in Kennebunkport, ME - Ten Best Kept Water & Wastewater Process Management Secrets - Sponsored by JETCC - 207-253-8020 – Approved for 6 hours
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Note:
WPETC stands for Wright Pierce Environmental Training Center.
JETCC stands for Joint Environmental Training Coordinating Committee
MRWA stands for Maine Rural Water Association
MWWCA stands for Maine Wastewater Control Association
NEIWPCC stands for New England Interstate Water Pollution Control Commission

Spring 2005 Exam

The Spring Wastewater Exam will be given in the usual locations on Wednesday, May 11, 2005. Applications must be postmarked on or before March 26, 2005 or hand delivered to the DEP on March 28, 2005.

Laboratory QA/QC Training

If you are involved with laboratory work in your facility, you know that the DEP has been looking more closely at laboratory QA/QC. Last summer, JETCC sponsored a number of training sessions that were conducted by personnel from Katahdin Analytical Laboratories. Those of you who attended received a notebook containing the first draft of a manual that is a model for you to use to develop your own Lab QA/QC program. In December, a Compact Disk was sent out with a copy of the manual in electronic form and some other resources designed to help you develop your own manual.

JETCC will hold three training classes in Brewer on March 21, Presque Isle on March 22, and Lewiston on March 24 where DEP personnel and wastewater laboratory staff will work with you to help you learn how to use the materials on the CD and other resources to develop your own QA'QC manual and program. The class will have three tracks: (1) a computer track where you will learn how to use the CD on your computer; (2) a laboratory track where lab technicians from wastewater facilities will show how they developed their QA/QC programs; and. (3) a regulatory track where DEP personnel will discuss what DEP inspectors will be looking for when they review a facility's QA/QC program.

We encourage anyone who works in a wastewater lab and who has any questions about the QA/QC program, the CD or any other relevant lab issues to attend one of the courses.

Answers to *For Practice:*

1. a. Small chlorine residuals in colored water samples must be measured using amperometric titration (Standard Methods)

2. d. F:M Ratio = (Lb BOD)/(Lb MLVSS)

   Lb BOD = 209 X 1.6 X 8.34 = 2,793 lbs

   Lb MLVSS = 2,437 X .6 * 8.34 * 0.82 = 10,000 lbs

   F:M ratio = 2,793/10,000 = 0.28

   Target F:M = 0.30 = 2,793/ Lbs MLVSS

   Lbs MLVSS = 2,793/0.230 = 9310 lbs

   Solve using the data given: Pounds To Waste = (10,000 – 9310) = 690 lbs

   Determine the gallons to be wasted: Gallons wasted = (pounds wasted * 1,000,000) / (waste sludge conc. * 8.34)

   Gallons Wasted = (690 * 1,000,000)/(8300 * 8.34) = 9,968 gallons

3. c. Exhaust gases from any gasoline motors contain carbon monoxide, which is a poisonous gas.

4. b In a centrifugal pump, the impeller spins the liquid causing it to move from the center of the impeller to the outside.